9. [7 points] Jay drinks a cup of coffee which contains 140mg of caffeine. The amount of caffeine, in milligrams, left in his body h hours after he drinks the coffee is given by the function

$$C(h) = 140(0.89)^h.$$

For each part below, <u>show all work</u> and leave your answer in exact form or rounded to at least two decimal places.

a. [2 points] What percent of the caffeine in the cup of coffee is left in Jay's body 2 hours after he drinks it?

_____%.

b. [2 points] What is the continuous percent decay rate of $C(h)$?

_____%

c. [3 points] Find the half-life of $C(h)$. *Include relevant units in your answer.*

The half-life of $C(h)$ is _____.